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(72) Inventor: **Olsen, Robert C.**
Medinah, Illinois 60157 (US)

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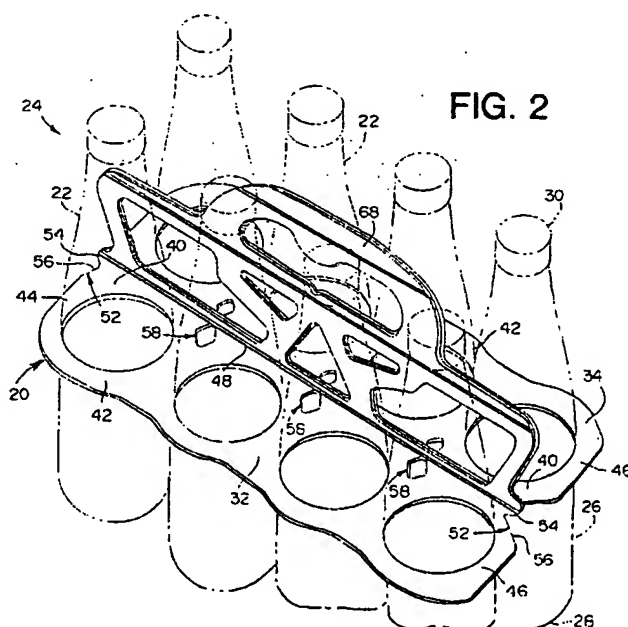
(74) Representative: **Rackham, Stephen Neil**
GILL JENNINGS & EVERY,
Broadgate House,
7 Eldon Street
London EC2M 7LH (GB)

(71) Applicant: **ILLINOIS TOOL WORKS INC.**
Glenview, Illinois 60025 (US)

(54) Container carrier and package

(57) A plastic carrier device (20) for carrying a plurality of containers (22), such as bottles, or cans has container engaging portions (2,34); each of which is formed from a sheet of plastics material and includes bands (36) which define apertures (38) therein for engaging the side walls (26) of the containers (22) to form a package (24). Each container engaging portions (32,34) has a top margin (40) and opposite side margins (44,46). A joined portion (48) is formed at the top margins (40) by bonding the top margins (40) together for joining the container engaging portions (32,34) together such that the portions (32,34) freely extend downwardly

from the joined portion (48). The bonded joined portion (48) is continuous along the length of the carrier (20). A notch portion (52) is provided along the side margins (44,46) of each of the container engaging portions (32,34) and is downwardly of the joined portion (48) to relieve the amount of stress placed on the ends of the joined portion when the bands (36) are stretched over the containers (22) by a jaw stretching machine. A plurality of cutouts (58) are provided in each container engaging portion (32,34) downwardly of the joined portion (48) and are located between adjacent apertures (36) in the portions (32,34).

**FIG. 2****EP 0 782 962 A1**

Description

This invention is generally directed to improvements to a carrier device for carrying containers such as bottles, cans and the like. More particularly, the invention contemplates improvements to a plastic carrier device which includes two container carrying portions that can be stretched over the containers and further includes a continuous joined portion between the two container carrying portions, such joined portion being formed by welding or bonding the top margins of the container engaging portions together.

The majority of container carriers today are preferably formed from a plastic material due to the ease and lower cost of manufacturing and the strength of the material. The carriers have a plurality of bands which define apertures therein, each of which holds a single container therein. To apply the carrier to the containers, the bands of the carrier are stretched over the containers by a jaw stretching machine.

United States patent application Serial No. 08/489,339 and European Patent Application 96304051.4 which claims priority from it and which is published as EP-A-discloses such a carrier. The plastic carrier has two container engaging portions which are joined to each other along adjacent edges by a discontinuous weld or joined portion. Each container engaging portion has a plurality of bands which define apertures therein, each of which holds a single container to form a package. To apply the carrier to the containers, the bands of the carrier are stretched over the containers by a jaw stretching machine. Because the stretching forces on traditional jaw stretching machines are high, the joined portion of the carrier has a tendency to peel at the ends of the joined portion.

In addition, the carrier disclosed in the above patent application is provided with a plurality of cutouts which interrupt the length of the joined portion to aid in permitting the carrier to be stretched over the containers. The cutouts contract longitudinally when the carrier is stretched laterally over the containers. Since the joined portion is discontinuous along its length, when a line of carriers, before they are separated into individual carriers, are wound on a reel or a roll, the edges of the cutouts tend to interlock with each other which makes the handling of the carriers difficult.

According to this invention a carrier comprises:

a carrier device for carrying containers comprising: first and second container engaging portions each formed from a sheet of plastics material, each said container engaging portion having a top margin and a plurality of bands defining apertures therein each for holding a single container therein, a joined portion at said top margins of said container engaging portions which is formed by bonding said top margins of said container engaging portions together such that said container engaging portions

freely extend downwardly from said joined portion, said joined portion having a predetermined length and being continuous along the length of the carrier device.

Preferably the carrier device also includes a plurality of cutouts, downwardly of said continuous joined portion, and spaced along the length of the joined portion, in use, said cutouts contracting when said container engaging portions are stretched over the containers.

Preferably in the carrier device each of said container engaging portions has opposite side margins which define the outermost extent of said container engaging portions of each carrier, and further including a notch portion along at least one of said side margins, said notch portion being downwardly of said joined portion, said notch portion providing a stress relief for the end of said bonded joined portion proximate to said notch portion when said container engaging portions are assembled over the containers.

The present invention also embraces a package comprising a carrier device in accordance with this invention and a plurality of containers located in their respective apertures in each of the container engaging portions and held in the package by the engagement of their side walls with the bands surrounding each aperture.

Since the joined portion of the container engaging portion is continuous along its length this facilitates winding a line of carrier devices onto a reel or a roll before they are separated into individual carrier devices.

The plurality of cutouts allow the carrier device to be stretched laterally over a plurality of containers, such cutouts contracting longitudinally when the carrier device is stretched laterally.

The notch portion provided along the side margins of the container engaging portions downwardly of the joined portion relieves the amount of stress placed on the ends of the joined portion when the bands are stretched over the containers by a jaw stretching machine.

The carrier device may include a handle portion which extends from the joined portion.

A particular example of a carrier in accordance with this invention will now be described with reference to the accompanying drawings, wherein like reference numerals identify like elements, and in which:-

Figure 1 is a side elevational view of a carrier device which incorporates the features of the invention; and

Figure 2 is a perspective view of the carrier device surrounding a plurality of containers, shown in phantom lines, to form a package.

As shown in FIGURE 1, the present invention presents a novel multi-packaging device or carrier de-

vice 20. As illustrated in Figure 2, the novel carrier device 20 of the present invention is used to securely hold a plurality of containers 22, such as bottles, to form a package 24. Each bottle 22 includes a side wall 26, a bottom wall 28 and a top or cap 30. It is to be understood that other types of containers can be carried by the carrier device 20, such as cans and the like.

When the containers 22 are secured in a package arrangement by the carrier device 20, the containers 22 are aligned in an array so to form two rows. As shown in the drawings, each row has four bottles 22. It is to be understood that the carrier device 20 operates equally well with any number of containers 22.

The carrier device 20 is made of a suitable flexible, resilient, stretchable material, such as plastic. Preferably, the carrier device 20 is made of a low density polyethylene. The material is such that the carrier device 20 can be stretched over the containers 22 by a jaw stretching machine and can conform to the side walls 26 of the containers 22. The carrier device 20 may be applied to the containers 22 by known means, for example, by the jaw stretching machines disclosed in the above United States Patent No. 4,250,682 or United States Patent No. 3,204,386.

The carrier device 20 includes container engaging portions 32, 34, each formed from a sheet of plastic material. Each container engaging portion 32, 34 includes a plurality of annular rings or bands 36. The annular bands 36 define a plurality of shaped apertures 38 for securely holding the containers 22 therein. Each container engaging portion 32, 34 has a top margin 40, a bottom margin 42 and opposite side margins 44, 46.

The container engaging portions 32, 34 are connected or joined together by a continuous seam or a continuous joined portion 48 along the top margins 40 of each container engaging portion 32, 34. The joined portion 48 runs the length of the container engaging portions 32, 34 such that opposite ends of the joined portion 48 are defined. The container engaging portions 32, 34 freely extend from the joined portion 48. When the carrier device 20 is not assembled with containers 22, the carrier device 20 is flat and the joined portion 48 lies in generally the same plane as the container engaging portions 32, 34. The joined portion 48 projects generally perpendicular to the plane of the container engaging portions 32, 34 when the carrier device 20 is assembled with containers 22.

The joined portion 48 may be formed by extruding a strip or layer of resilient, stretchable material (not shown), such as plastic, preferably low density polyethylene material, between the top margins 40 of the plastic sheet container engaging portions 32, 34 and thereafter sufficiently melting and merging the top margins 40 of the container engaging portions 30, 32 and the layer of extruded plastic together by known means, preferably by heat sealing and fusing the layers together, to form a strong, integral bond. The resulting bond in the joined portion 48 is relatively rigid and non-collapsible relative

to the plastic sheet material from which the container engaging portions 32, 34 are formed. Therefore, the overall length of the carrier 20 is substantially fixed by the length of the bonded joined portion 48. A method for forming the multi-package device or carrier device 20 of the present invention is disclosed in the above European Patent Application.

Each side of each side margins 44, 46 has a straight portion 50 and a notch portion 52. The notch portion 52 is between the joined portion 48 and the straight portion 50 of the side margin 46, 48. The straight portion 50 of each of the side margins 46, 48 defines the outermost extends of the container engaging portions 32, 34.

The notch portion 52 on each side of the side margins 44, 46 is downwardly of the joined portion 48 and upwards of the outermost apertures 38 to provide a stress relief for the outermost ends of the joined portion 48 when the container engaging portions 32, 34 are being stretched over the containers 22 by the jaw stretching machine. Each notch portion 52 is formed by an upper inwardly directed, tapered edge 54 which is joined with a lower inwardly directed, tapered edge 56. The upper edge 54 of each notch portion 52 tapers inwardly from the joined portion 48 to the lower tapered edge 56. The lower tapered edge 56 of each notch portion 52 tapers therefrom outwardly to the straight portion 50 of the respective side margin 44, 46.

When the container engaging portions 32, 34 are stretched over the containers 22 by the jaw stretching machine, the upper and lower edges 54, 56 of the notch portion 52 generally straighten relative to the straight portion 50 to relieve the stress on the outermost ends of the joined portion 48. Since the stretching forces on jaw stretching machines are high, the notch portions 52 avoid the stress from being applied directly to the outermost ends of the joined portion 48 where the joined portion 48 would be susceptible to peel forces. The notch portions 52 also permit the outermost band 36 on each side of the container engaging portions 32, 34 to accept some of the stress in areas substantially all around the outermost aperture 38. This prevents the concentration of stress forces in the side margins 44, 46 which could over-stretch the band 36.

Each container engaging portion 32, 34 has a plurality of spaced cutouts 58 therein which form apertures through the container engaging portions 32, 34. The cutouts 58 are spaced along the length of the joined portion 48 and are intermediate adjacent apertures 38. The cutouts 58 are spaced upwardly from the apertures 38, and are adjacent to, but do not interrupt, the joined portion 48. The cutouts 58 aid in permitting the carrier device 20 to be stretched laterally over the containers 22. The cutouts 58 contract longitudinally when the carrier device 20 is stretched laterally over the containers 22 by a jaw stretching machine.

The cutouts 58 are formed from a pair of notch portions 60, 62, each of which is similar in form to the notch portions 52 provided on the side margins 46, 48 of the

container engaging portions 32, 34. Specifically, each notch portion 60, 62 is formed by an upper tapered edge 64 and a lower tapered edge 66. The upper edge 64 tapers from the joined portion 48 outwardly towards the respective side margin 44, 46 to the lower tapered edge 66. The lower tapered edge 66 tapers therefrom inwardly to a point 72 which is spaced from the joined portion 48. The notch portions 60, 62 are joined at their lower ends at point 72.

When the container engaging portions 32, 34 are stretched over the containers 22 by the jaw stretching machine, the upper and lower edges 64, 66 of the cutouts 58 generally straighten to contract or narrow the cutouts 58. This permits the portions of the upper margin 40 of the container engaging portions 32, 34 which are between the respective cutouts 58 to stretch as the container engaging portions 32, 34 are stretched over the containers 22 to allow the bands 36 of the container engaging portions 32, 34 to stretch around the containers 22. Since the joined portion 48 is relatively rigid, it does not substantially stretch when the carrier 20 is applied to the containers 22, but the flexible plastic sheet material of which the container engaging portions 32, 34 are formed is able to stretch. In addition, the area along the sides of the bands 36 and the bottom margin 40 of the container engaging portions 32, 34 may also stretch. Moreover, due to the contraction of the cutouts 58, the joined portion 48 is prevented from substantially bunching as the carrier 20 is applied to the containers 22. The joined portion 48 may slightly wrinkle or fold in areas proximate to the cutouts 58, but the bond in the joined portion 48 is strong enough to prevent the layers of the joined portion 48 from shearing.

The carrier device 20 may include an integral handle portion 68 which extends upwardly from the joined portion 48 of the carrier device 20. Such a handle portion 68 is disclosed in the above European patent application. When the carrier device 20 is not assembled with containers 22, the carrier device 20 is flat and the handle portion 68 lies in the same plane as the container engaging portions 32, 34. When the carrier device 20 is assembled with containers 22, the handle portion 68 projects generally perpendicular to the plane of the container engaging portions 32, 34.

When the carrier device 20 is manufactured, the carrier device 20 is integrally attached to other like carrier devices before being separated into an individual carrier device. The outermost ends 70 of the handle portion 68 and the straight portions 50 of the side margins 44, 46 of the container engaging portions 32, 34 provide attachment regions for attaching adjacent interconnected like carrier devices thereto. This allows a plurality of flat carrier devices 20 to be easily handled. When the carrier devices 20 are flat and are attached to each other, the carrier devices 20 can be wound onto a reel into a roll or otherwise easily handled. To form an individual carrier device 20, the carrier devices are cut apart from each other by suitable means.

B cause the joined portion 48 is continuous along its length, handling and winding problems have been reduced. Because there is not a discontinuous edge along the length of the joined portion 48, the carrier devices 20 do not interlock with each other when the carrier devices 20 are wound on the reel or roll.

The carrier device 20 of the present invention presents several other advantages. For example, the carrier device 20 is sturdy while allowing a consumer to easily carry the package 24. In addition, the carrier device 20 of the present invention can be manufactured at a low cost.

15 Claims

1. A carrier device (20) for carrying containers (22) comprising:

first and second container engaging portions (32,34) each formed from a sheet of plastics material, each said container engaging portion (32,34) having a top margin (40) and a plurality of bands (36) defining apertures (38) therein each for holding a single container (22) therein, a joined portion (48) at said top margins (40) of said container engaging portions (32,34) which is formed by bonding said top margins (40) of said container engaging portions (32,34) together such that said container engaging portions (32,34) freely extend downwardly from said joined portion (48), said joined portion (48) having a predetermined length and being continuous along the length of the carrier device (20).

2. A carrier device as defined in claim 1, further including a plurality of cutouts (58) downwardly of said continuous joined portion (48), and spaced along the length of the joined portion (48), in use, said cutouts (58) contracting when said container engaging portions (32,34) are stretched over the containers (22).

3. A carrier device as defined in claim 2, wherein each said cutout (58) has edges (64) that extend from spaced points along the joined portion (48).

4. A carrier device as defined in claim 2 or 3, wherein each said cutout (58) is located between adjacent apertures (38) of said container engaging portions (32,34).

5. A carrier device as defined in any one of the preceding claims, wherein each of said container engaging portions (32,34) has opposite side margins (44,46) which define the outermost extent of said container engaging portions (32,34) of each carrier

- (20), and further including a notch portion (52) along at least one of said side margins (44,46) said notch portion (52) being downwardly of said joined portion (48), said notch portion (52) providing a stress relief for the end of said bonded joined portion (48) proximate to said notch portion (52) when said container engaging portions (32,34) are assembled over the containers (22). 5
6. A carrier device as defined in Claim 5, wherein each said notch portion (52) is defined by at least one edge (56) which tapers inwardly from the outermost extent of said side margin (42,44). 10
7. A carrier device for carrying containers comprising: 15
first and second container engaging portions each formed from a sheet of plastic material, each said container engaging portions including a plurality of bands, each said band defining an aperture for securely holding a single container therein, each said container engaging portion having a top margin and opposite side margins, said side margins defining the outermost extends of said container engaging portions; a joined portion at said top margins of said container engaging portions which is formed by bonding said top margins of said container engaging portions together for joining said container engaging portions freely extend downwardly from said joined portion, said joined portion having a predetermined length and opposite ends; and a notch portion along at least one of said side margins of each said container engaging portion, said notch portion being downwardly of said joined portion and providing a stress relief for the end of said joined portion proximate to said notch portion when said container engaging portions are assembled over the containers. 20
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8. A package (24) comprising a carrier device (20) in accordance with any one of the preceding claims, and a plurality of containers (22) located in their respective apertures (38) in each of the container engaging portions (32,34) and held in the package by the engagement of their side walls (26) with the bands (36) surrounding each aperture (38). 50
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FIG. 1

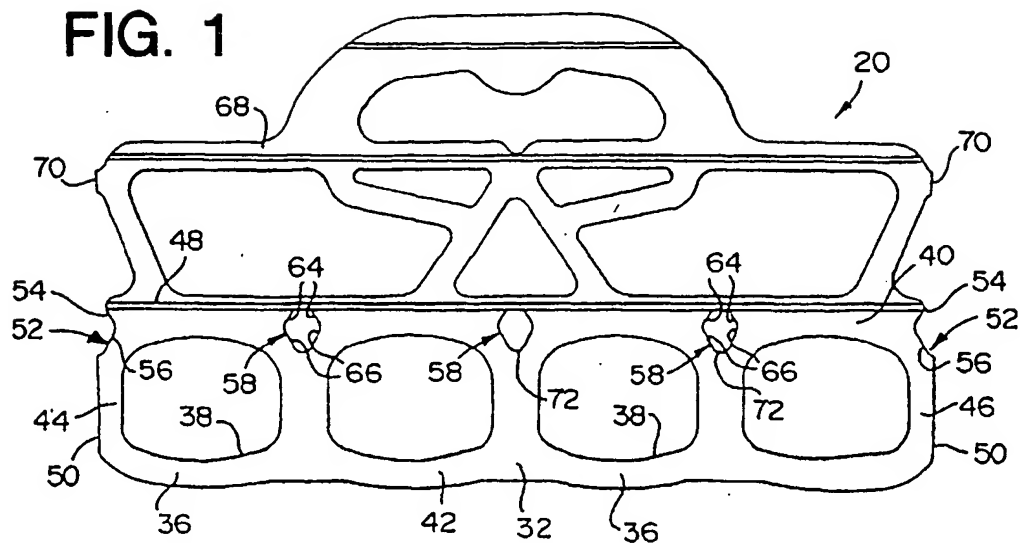
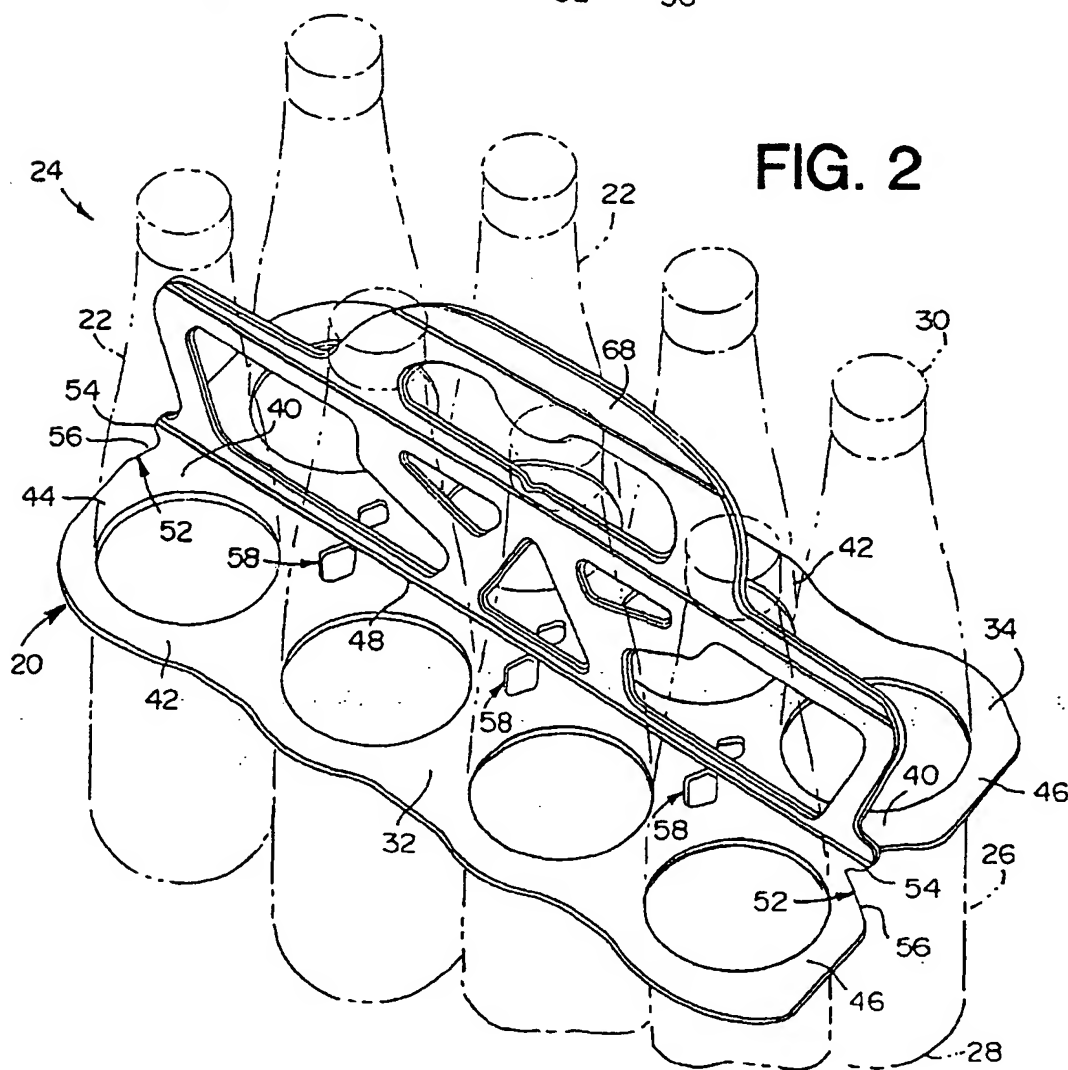


FIG. 2





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number

EP 96 30 6551

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
D,E	EP 0 748 744 A (ILLINOIS TOOL WORKS) 18 December 1996	7,8	B65D71/50
A	* column 3, line 25 - column 4, line 44 * * figures 1,2 * ---	1-6	
P,X	EP 0 728 674 A (ILLINOIS TOOL WORKS) 28 August 1996	7,8	
P,A	* column 4, line 6 - column 5, line 5 * * figures 1,3 * ---	1-6	
A	US 2 680 038 A (GRAY, H. Z.) 1 June 1954 * column 1, line 53 - column 2, line 37 * * figures 1-3 * -----	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			B65D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 15 April 1997	Examiner Wennborg, J
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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